



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO039672**

**Supplier:** MOA001-VU  
Monroe Aerospace  
399 East Drive  
Melbourne, FL 32904 USA  
Phone: 1-321-727-0047  
Fax: 1-321-727-7331

**PO No:** PO039672

**PO Date:** 4/20/18

**Due Date:** 4/25/18

**Purchase Order**

**Revision:**

**Revision Date:**

**Ship-To Contact:** Lavoie, Chantal  
clavoie@dartaero.com

**E-MAILED**  
**APR 20 2018**

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground

**Pymt Terms:** Net 30

**Freight Terms:**

**Special Comments:**

## Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	AN4-12		Bolt	Firmed	4/25/18	50 Ea	50 Ea	50 Ea	\$0.50/Ea	\$25.00
2	AN526C832R9		Screw	Firmed	4/25/18	200 Ea	200 Ea	200 Ea	\$0.06/Ea	\$12.00
3	AN6-20A		Bolt	Firmed	4/25/18	40 Ea	40 Ea	40 Ea	\$0.72/Ea	\$28.80
4	NAS1149FN616P		Washer	Firmed	4/25/18	200 Ea	200 Ea	200 Ea	\$0.02/Ea	\$4.00

**Grand Total:** \$69.80

## Order Notes

ced. AT 18/04/23

C2

### Procurement Quality Clauses

A005 RIGHT OF ENTRY

A016 PERSONNEL QUALIFICATION

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A032 PUBLIC LAW 101-592 FASTENER QUALITY ACT

A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS

A040 NOTIFICATION OF QUALITY ESCAPE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENTS

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 4/20/18 1:16 PM dart.lavoie.chantal



2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199

**PHYSICAL AND CHEMICAL CERTIFICATION**

DATE MFG.: 02/12/16

PART NO.: AN4-12 per NASM4-12 rev.3

AFC LOT NO.: 25601

QTY MFG.: 24,700

PROCUREMENT SPECIFICATION: Produced per NASM 6812

**HEAT TREAT**

VENDOR: Brite Metal

CERTIFICATION NO.: 171211

PROCUREMENT SPECIFICATION: Heat Treat per AMS 2759

**PLATING**

VENDOR: Cleveland Plating

CERTIFICATION NO.: 504554

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS-QQ-P-416 D, Type II, Class 2

**MATERIAL**

MILL: Charter

COUNTRY OF MELT: USA

HEAT: 20330290

GRADE SPECIFICATION: Alloy Steel per AMS 6300 E, Type 4037, .312"

4037 MATERIAL CHEMISTRY											
ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.350	.760	.008	.002	.200	.040	.060	.220	.080	.044	

PHYSICAL PROPERTIES				
PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	4,080 lbs.	3,130 lbs.	3,680 lbs.	HRC 26-32
ACTUAL	6,278lbs.	5,0252 lbs.	4,331 lbs.	HRC 29-30

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

QS-082  
REV 0  
2/15

Airfasco Industries  
Quality Assurance Representative:

T. West  
T. West

**2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone: 330-430-6190  
Fax: 330-430-6199**

## CERTIFICATE OF CONFORMANCE

# ECAS

I Herby Certify that on 06/02/17 Airfasco Industries provided the supplies called for by Contract/ PO Number FL79646 in accordance with all applicable requirements for shipment. I further state that the process certifications are in conformance with the contract requirements, including specifications and/or drawings, physical item identification (part number) and the quantity shown on this or attached acceptance document. The part numbers certified below have been manufactured in the United States. DFAR 252.225-7009 compliant in fastener base raw material melt source only, with heat number and country, does not include the post cadmium metal plating.

Quality Assurance Representative

  
WM. DENT

[illegible]



**CHARTER  
STEEL**

A Division of  
Charter Manufacturing Company, Inc.

**LOAD**

1658 Cold Springs Road  
Shuttsville, Wisconsin 53080  
(262) 268-7400  
1-800-437-0789  
Fax (262) 268-2570

**CHARTER STEEL TEST REPORT**

**Melted In USA Manufactured In USA**

**Kreher Steel Co - Melrose Park  
1550 N. 25th Ave.  
Melrose Park, IL-60160**

Cust P.O.	40081
Customer Part #	317131
Charter Sales Order	70053176
Heat #	20330280
Ship Lot #	2067309
Grade	4037 X SK FG RHO 5/16
Process	HR
Finish Size	5/16
Ship date	18-JUN-14

I hereby certify that the material described herein has been manufactured in accordance with the specifications and standards listed below and that it satisfies these requirements. The recording of false, fictitious and fraudulent statements or entries on this document may be punishable as a felony under federal statute.

**Test results of Heat Lot # 20330280**

Lab Code: 125544

CHEM	C	MN	P	S	SI	NI	CR	MO	CU	SN	V
%WT	.35	.76	.008	.002	.200	.04	.06	.22	.06	.006	.002
	AL	N	B	TI	CA	NB					
	.044	.0060	.0003	.001	.0015	.004					

JOMINY(HRC)

J1	J2	J3	J4	J5	J6	J7	J8	J9	J10
54	51	45	34	26	24	23	22	22	21
J01.5MM	J03MM	J05MM	J07MM	J09MM	J11MM	J13MM	J15MM		
54	51	41	33	26	24	22	21		

JOMINY SAMPLE TYPE ENGLISH=C  
JOMINY SAMPLE TYPE METRIC=C

Test results of Rolling Lot # 2067309

REDUCTION RATIO=637:1

Specifications:

Manufactured per Charter Steel Quality Manual Rev Date 9/12/13  
Meets customer specifications with any applicable Charter Steel exceptions for the following customer documents:  
Customer Document = MATERIAL SPECIFICATION Revision = 2 Dated = 13-SEP-11

Additional Comments:

Charter Steel  
Cuyahoga Heights, OH, USA

Rem: Load1, Fax0, Mail0



This MTR supersedes all previously dated MTRs for this order

*Janice Barnard*  
Janice Barnard  
Manager of Quality Assurance  
Printed Date : 06/18/2014



A DIVISION OF J.T. ADAMS CO., INC.

4520 WILLOW PARKWAY  
CLEVELAND, OHIO 44125  
PHONE (216) 641-3290  
FAX (216) 641-1223  
www.tensile.com

**CERTIFIED TEST REPORT**

Airfasco Industries Inc.  
2655 Harrison Ave. SW  
Canton OH 44706

Job No.: B4-290-395  
Date: 10-23-14  
Cust. PO#: 61344

Description: 1 sample Mill: Charter Country of Melt: USA  
Material: 4037 Heat# 20330290  
Spec: AMS 6300E

**TEST RESULTS**

**Product Analysis of Elements in % (OES per TTML C-01D):**

	<u>Actual</u>	<u>Requirements</u>
Carbon	0.38	0.35-0.40
Manganese	0.76	0.70-0.90
Phosphorus	0.008	0.035 Max.
Sulfur	0.001	0.040 Max.
Silicon	0.19	0.15-0.35
Chromium	0.05	N/A
Nickel	0.04	N/A
Molybdenum	0.21	0.20-0.30
Columbium	0.002	N/A
Aluminum	0.050	N/A
Copper	0.09	N/A
Vanadium	<0.001	N/A
Titanium	0.002	N/A

The above conforms to specifications listed.

  
Authorized Agent



Page 1 of 1

**This Report May Not Be Reproduced Except in Full**

This report represents Tensile Testing interpretation of the results obtained from the test and is not to be construed as a Guaranty or Warranty of the condition of the materials tested. Tensile Testing shall not be held liable for misinterpretation of conditions, loss, damage, injury or death arising from or attributable to delay preceding a test or subsequent to performance of a test.

# **BRITE METAL**

## **CERTIFICATION OF PROCESS**

**CUSTOMER:** AIRFASCO INDUSTRIES, INC.  
2655 HARRISON AVE SW  
CANTON OH 44706

**THIS IS TO CERTIFY THAT BRITE METAL INC. HAS PROCESSED THE FOLLOWING  
MATERIAL IN ACCORDANCE WITH THE MOST WIDELY ACCEPTED  
METALLURGICAL PROCEDURE.**

**PO #:** 62427      **WEIGHT:** 563      **NO. BINS:** 0      **NO. PCS:** 24,700

**PN#:** AN4-12      **LOT#:** 25601      **MATERIAL#:** 4037

**BM ORDER NO:** 171211      **CORE HARD SPECS:** HRC 28-32

**PROCESS TO:** AMS 2759

**DATE RECEIVED:** 01/07/16      **DATE SHIPPED:**

### **HEAT TREATING TEST RESULTS**

**CORE HARDNESS:** \_\_\_\_\_ **RC 29 / 30**

**SURFACE HARDNESS:** \_\_\_\_\_ **RC 29 / 30 @.003**

**CASE DEPTH:** \_\_\_\_\_ **N/A**

**CORE HARDNESS AS QUENCHED:** \_\_\_\_\_ **N/A**

**INSPECTOR:** \_\_\_\_\_ **SK**

**DATE:** \_\_\_\_\_ **1-18-16**

**CLEVELAND PLATING, LLC**  
**TEST CERTIFICATION**

CUSTOMER: AIRFASCO INC  
AIRFASCO INC  
2655 HARRISON AVE SW  
CANTON, OH 44706

ORDER #: 62478

**FINISHED PRODUCT DESCRIPTION**

AIRFASCO PART#: AN4-12  
CAD YELLOW .0003  
AMS-QQP-416D TY 2 CLASS 2  
CERTIFICATION FOR PROCESS

**CERTIFICATION DATE: 02/11/16**

LOT #: 25601

CP #: 504554

**SAMPLING PLAN: Per Cleveland Plating Control Plan, Section 1.5 based on ASME/ANSI B 18.18.4M**

Lot Size: 24,700 pcs. - 566 lbs.      Number of Pieces Tested: 12

**COATING THICKNESS: Tested in accordance with ASTM E376**

Average = .00031      IN.

**CORROSION RESISTANCE: Chamber operated in accordance with ASTM B117**

Processed to Meet (to comply with salt spray test)

Tested\* (\*In the event of a failure, customer will be contacted to begin isolation and containment)

**ALL PARTS SAMPLED AND TESTED AFTER FINISHING EXCEPT AS FOLLOWS:**

**STRESS RELIEF/HYDROGEN EMBRITTLEMENT RELIEF:**

Pre-Bake Temperature (F):      FOR      HRS

Post Bake Temperature (F):      FOR      HRS

The purchase order stated above was processed in accordance with Cleveland Plating's QA Manual Rev 01.  
A sample of the above material has passed the tests required by the purchase order and conforms to the listed  
finishing specification. This certification shall not be reproduced without the approval of Cleveland Plating, LLC.

APPROVED BY:

1028 East 134th Street - Cleveland, OH 44110 - PH (216) 249-0300 - FAX (216) 249-0303  
www.clevelandplating.com

Nº 84134

# CERTIFICATE OF COMPLIANCE TEST REPORT

FORM REV A 11/09

MADE IN THE U.S.A.

CUSTOMER NAME EAST COAST AVIATION SUPPL

PURCHASE ORDER NO. 70236

PART NO. AN526C832R9\* REV 6

INTERNAL ROUTING NO. 35998

QUANTITY TWENTY SEVEN THOUSAND FOUR HUNDRED

MATERIAL/SPECIFICATION .152 302HQ CINCINNATI KCNS00024

DATE 5/12/2014

PARTS CONTAINED IN THIS SHIPMENT HAVE BEEN MANUFACTURED AND INSPECTED IN ACCORDANCE WITH APPLICABLE DRAWINGS AND SPECIFICATIONS.

## PHYSICAL PROPERTIES

TENSILE STRENGTH      HARDNESS      SCALE

- |                |    |
|----------------|----|
| 1) 1620.0 LB T | 1) |
| 2) 1606.0 LB T | 2) |
| 3) 1625.0 LB T | 3) |
| 4) 1618.0 LB T | 4) |
| 5) 1609.0 LB T | 5) |
| 6)             | 6) |
| 7)             | 7) |
| 8)             | 8) |

CONFORMS TO THE PROCUREMENT SPECIFICATIONS OF:

FF-S-92B

DFARS 252.225-7009

OTHER MECHANICAL TEST DATA

- ☒ MEET MAGNETIC PERMEABILITY REQUIREMENTS OF FF-S-92B, MIL-I-17214B, AND ASTM A342/A 342M TEST METHOD 3.

PARTS ARE FREE FROM MERCURY AND ASBESTOS CONTAMINATION.

VISUAL AND DIMENSIONAL INSPECTION SATISFACTORY

FINISH

MEETS PASSIVATION REQUIREMENT AMS2700  
MTHD 1 TYPE 6/7 CL1/QQ-P-35

OTHER TESTING:

INSPECTED TO ANSI/ASQ Z1.4 LEVEL 2 REV 2008

ADDITIONALLY, AN ANSI/ASQC Z 1.4 SAMPLE OF THE FINISHED FASTENERS WERE TESTED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS. SAMPLE PARTS AND THE TEST DATA ARE IN OUR RECORDS RETENTION AREA AS OBJECTIVE EVIDENCE AND WILL BE HELD AS REQUIRED.

Signature

TRACEY NIKSA, QC TECH

Cage Code #63020

CRESCENT MANUFACTURING OPERATING, CO.



700 George Washington Turnpike, Burlington, CT 06013, U.S.A.  
Telephone: (860) 673-2591 Fax: (860) 673-5973



# Scott Metal Finishing

310 Birch Street  
Forestville, CT 06010  
(860) 588-3378

-----Color Coding \* Color Identification \* Tumbling-----  
-----Passivate \* Bright Dip-----

\*\*\*\*\*

## CERTIFICATE OF COMPLIANCE

Customer: Cresent Manufacturing  
Part No: AN526C832R9 Rev  
PO No: 35998  
Date of Shipment: 5/9/2014  
Amount of Parts: 30,000

This is to certify that the material covered by this verification was manufactured in accordance with applicable specifications, drawings, and / or special requirements set forth in subject contract, and / or order at the time of delivery.

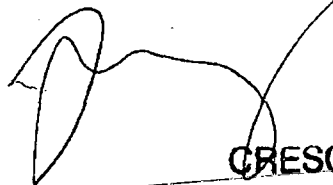
Physical, chemical, and environmental test reports applicable for the material and / or processes used are on file and available upon request.

Where applicable, final finish requirements were performed by qualified subcontractors who's certificate of compliance and test reports are on file and available upon request.

Material Specifications: MIRAGE EZ451/NITRIC ACID 20-25% @ 130 DEGREES

Finish Specifications: PASS PER AMS2700 REV E MTHD 1 CLASS 4

Roy, Ryan  
Quality Control Manager



CRESCENT MFG  
T.R. NO. 84134



# KOS LIMITED

(YUSAN-DONG) 43, EOSIL-RO, YANGSAN-SI, GYEONGSANGNAM-DO, KOREA

TEL : (055) 389-1050 FAX : (055) 385-9189

E-mail : kosyrd@koswire.com

## Inspection Certificate

DATE OF ISSUE: 2014-01-23

DESCRIPTION	STAINLESS STEEL WIRE FOR COLD HEADING ( WSB )		
MILL CERT. NO.	AB1-201401A-0258	GRADE	ATSI 302HQ
P.O NO.	13226	DIAMETER	0.1520 inch
INVOICE NO.	B13A003/02 ( B13C140-04 )	FINISH	DU X-CO (COIL)
CONTRACTOR	KOS AMERICA, INC.	QUANTITY	3,507.7 LBS ( 16 COILS )
CUSTOMER	CINCINNATI METALS	APP. SPEC	ASTM A 493-09/QQS-763F ISO A3506 A2 AMS S1266/SAB AIR412

## CHEMICAL COMPOSITION

(wt%)

COMPONENT	C	SI	Mn	P	S	Ni	Cr	Cu			
CH. NO.											
KONS00024	0.0100	0.4200	0.7800	0.0250	0.0010	9.1700	17.3900	3.2900			

## INSPECTION RESULTS

ITEMS COIL NO.	SIZE	T/S	R/A			Weight	LOT NO.	REMARK
	( inch )	( ksi )	( % )	( )	( )	( )		
	+0.00100	85.0						
	-0.00100	75.0						
1	0.1517	78.8	80.3			249.1	IT0101-40117-0001	KONS00024
2	0.1517	78.8	80.4			249.1	IT0101-40117-0002	
3	0.1517	78.9	80.3			220.5	IT0101-40117-0003	
4	0.1517	78.7	80.4			207.2	IT0101-40117-0004	
5	0.1517	78.8	80.4			231.5	IT0101-40117-0005	
6	0.1517	78.8	80.4			249.1	IT0101-40117-0006	
7	0.1517	78.8	80.4			220.5	IT0101-40117-0007	
8	0.1517	78.8	80.4			220.5	IT0101-40117-0008	
9	0.1517	78.7	80.4			240.3	IT0101-40117-0009	
10	0.1517	78.8	80.4			216.0	IT0101-40117-0010	
11	0.1518	79.6	81.0			220.5	IT0101-40118-0011	
12	0.1518	78.9	81.0			227.1	IT0101-40118-0012	
13	0.1518	79.0	80.6			176.4	IT0101-40118-0013	
14	0.1518	79.0	80.6			176.4	IT0101-40118-0014	
15	0.1518	78.8	80.8			180.8	IT0101-40118-0015	
REMARKS		We hereby certify that the material described herein has been made in accordance with the specification of the order.  Prior consultation with KOS Quality Control is necessary if used for aerospace, nuclear or medical applications.					W.S.BAEK  MANAGER OF Q.C Dept.	
D/A CONT. NO : KSS0356/14 Conflict Minerals Compliant DFARS Compliant/Melt in ITALY DFARS per 252.226-7009 KONS00024=Cogne Heat 372684								

CONTINUE

CRESCENT MFG  
T.R. NO. 89139

MILLCERT NO: AB1-201401A-0258

ITEMS COIL NO.	SIZE	T/S	R/A			Weight	LOT NO.	REMARK
	( inch )	( ksi )	( % )	( )	( )	( lbs )		
	+0.00100	85.0						
	-0.00100	75.0						
18	0.1618	79.4	80.6			222.7	1T0101-40118-0016	KCNS00024
<div> <div> REMARKS  D/A CONT. NO : KSS0356/14  Conflict Minerals Compliant  DPARS Compliant/Meit in ITAL  DPARS per 262.226-7009  KCNS00024=Cogne Heat 372684 </div> <div> We hereby certify that the material described herein has been made in accordance with the specification of the order.   Prior consultation with KOS Quality Control is necessary if used for aerospace, nuclear or medical applications. </div> <div> W.S.BAEK  MANAGER OF Q.C Dept. </div> </div>								

END

CRESCENT MFG  
T.R. NO. 84134



# KOS LIMITED

(YUSAN-DONG) 48, EOSIL-RO, YANGSAN-SI, GYEONGSANGNAM-DO, KOREA

TEL : (055) 389-1050 FAX : (055) 385-9189

E-mail : kosyrd@koswire.com

## Inspection Certificate

DATE OF ISSUE: 2014-01-30

DESCRIPTION	STAINLESS STEEL WIRE FOR COLD HEADING ( WSB )		
MILL CERT.NO.	AB1-201401A-0573	GRADE	AISI 302HQ
P.O NO.	13228	DIAMETER	0.1520 inch
INVOICE NO.	B13C140/01 ( B13C140-04 )	FINISH	DU X-00 (COIL)
CONTRACTOR	KOS AMERICA, INC.	QUANTITY	1,263.2 LBS ( 5 COILS )
CUSTOMER	CINCINNATI METALS	APP. SPEC	ASTM A 493-09/Q39-763F ISO A3506 A2 AMS STD88/SAB ATR412

## CHEMICAL COMPOSITION

( wt% )

COMPONENT CH.NO.	C	SI	Mn	P	S	NI	Cr	Cu			
KCNS00024	0.0100	0.4200	0.7800	0.0250	0.0010	9.1700	17.8900	3.2900			

## INSPECTION RESULTS

ITEMS COIL NO.	SIZE ( inch )	T/S ( ksi )	R/A ( % )			Weight ( )	LOT NO.	REMARK
	+0.00100 -0.00100	85.0 75.0						
17	0.1517	79.0	80.9			249.1	170101-40120-0017	KCNS00024
18	0.1517	79.2	80.7			249.1	170101-40120-0018	
19	0.1517	79.6	81.2			249.1	170101-40120-0019	
20	0.1517	79.1	80.5			282.2	170101-40120-0020	
21	0.1517	79.0	80.9			233.7	170101-40120-0021	
REMARKS			We hereby certify that the material described herein has been made in accordance with the specification of the order.				W.S.BAEK MANAGER OF Q.C Dept.	
D/A CONT. NO : KSS0416/14 Conflict Minerals Compliant DFARS Compliant/Melt in ITALY DFARS per 252.225-7009 KCNS00024=Cogne Heat 372684			Prior consultation with KOS Quality Control is necessary if used for aerospace, nuclear or medical applications.					

END

CRESCENT MFG  
T.R. NO. 24134



COGNE ACCIAI SPECIAL S.p.A.

11100 AOSTA - VIA PARAVERA 16  
TEL. +390161612221 - FAX +390161612222  
C.F. 0218780037  
VAT 170037132678 - S.R.L. n. 40-00474

Company with management systems ISO  
9001 and ISO 14001 according to EN ISO 9001  
EN ISO 14001 e ISO 14001

AR 13-07-11

INSPECTION CERTIFICATE 3.1 (EN 10204:2004)  
(A03) DOCUMENT NUMBER 2013035885  
PAGE 1/1

(A06) CUSTOMER : KOS LIMITED  
(A07) CUSTOMER'S ORDER : order 13.06.2013 mail  
(A01) MANUFACTURER'S WORKS : AOSTA, VIA PARAVERA 16 - ITALY  
(A05) PRODUCER OF THE DOC: QUALITY DEPARTMENT  
(A08) MANUFACTURER'S WORKS ORDER NO: 25166939 /1.0 (A04) MARK OF THE MANUFACTURER : COGNE  
THE CERTIFIED PRODUCTS ARE COMPLYING TO THE PURCHASE ORDER

(B01) PRODUCT : RNS000315 LAM HOT ROLLED WIRE ROD TOLERANCE : + 0,000  
(B03) SURFACE FINISH :  
(B04) PRODUCT DELIVERY CONDITION: SL DIRECT SOLUTION TREATED  
(B09) PRODUCT DIMENSIONS (mm): 5,500  
(B02) GRADE :  
(B07) IDENTIFICATION HEAT NO: 372684 INTERNAL GRADE : 302HQ  
(B06) MARKING OF THE PRODUCT : 302HQ (B07) IDENTIFICATION LOT NO: 302HQ



STEELMAKING AEF + AOD + CONTINUOUS CASTING

(C71) CHEM. COMP. - LADLE ANALYSIS ACCORDING ASTM A1019-A751-A1086-A415-A588  
Control lot No. - Weight : 020000502529 80.700 KG

ELEMENTS OBTAINED	C	Si	Mn	P	S	N	Cr	Ni	Cu
	0,010	0,42	0,78	0,025	0,0010	0,021	17,39	9,17	3,29

TENSILE TEST IN AS DELIVERY CONDITION  
Control lot No. - Weight : 020000503378  
SPECIFICATION

EN-ISO6832-1 8.950 KG

(C02) DIRECTION OF THE TEST PIECE: L

MEASUREMENT UNIT  
OBTAINED

Rm  
MPa  
491

THE MATERIAL MEETS THE REQUIREMENTS OF THE ORDER SPECIFICATION

THE PRODUCT SATISFIES CE DIRECTIVES: 2011/65 - 2000/53 2002/95 (RoHS) 2003/11 - 2005/618

QUALITY SYSTEM CERTIFIED BY I.G.Q. ACCORDING TO UNI EN ISO

9001:2008 - ISO/TS 16949:2009 (THE LAST ONE ONLY FOR HOT ROLLED-PEELED-GROUND, STAINLESS STEEL BARS AND ATOMIZED METALLIC POWDERS).

(201) DATE 18.07.2013

POLLASTRELLI ANDREA FC (QUALITY CERTIFICATE) - ELECTRONICALLY GENERATED CERTIFICATE

CRESCENT MFG  
T.R. NO. 24134



8261 Cornell Road.  
Suite 620  
Cincinnati, OH 45249  
Ph: 800-999-2600  
Fax: 513-755-9603

# TEST CERTIFICATE

Bill To:  
**CRESCENT MANUFACTURING**  
P.O. BOX 1350  
BURLINGTON, CT 06013

Ship To:  
**CRESCENT MANUFACTURING**  
700 GEORGE WASHINGTON TPK.  
BURLINGTON, CT 06013

**Customer PO#: K14-21**

**Customer Part #:**

<b>Invoice Date:</b> 4/4/2014 <b>Invoice:</b> 20436	<b>CMC SO:</b> 26349 <b>Line:</b> 2 <b>Item:</b> 3021620HQXC.CTDZ	<b>Ordered:</b> 4,799 <b>Shipped:</b> See Tags
<b>Item Desc:</b> .1520 302HQ X-COAT,250 CL <b>SPECS</b> ASTM A-493-05/QQS-783F ISO A3508-A2 AMS STD88 SAE AIR4127		
The raw material does not contain the conflict minerals.		

## MATERIAL TEST RESULTS

**Heat: KCNS00024**

### Chemical Composition %

	<u>C</u>	<u>MN</u>	<u>P</u>	<u>S</u>	<u>SI</u>	<u>CR</u>	<u>NI</u>	<u>CU</u>	<u>MO</u>	<u>N</u>
Actual:	0.010	0.7800	0.025	0.001	0.420	17.390	9.170	3.290	0.000	0.000

### Mechanical Properties

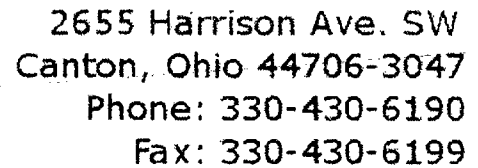
<u>Tensile Strength (KSI):</u>	<u>Country of Origin (Melt)</u>	<u>Alt Heat Number</u>	<u>DFAR Compliant (Y/N)</u>
79.60	ITALY	372884	YES 252.225-7009

Tag: 31464	S	26349	932 lb
Tag: 31465	S	26349	928 lb
Tag: 31466	S	26349	910 lb
Tag: 31467	S	26349	759 lb
Tag: 31604	S	26349	1,270 lb
<b>Total Weight:</b>			<b>4,799 lb</b>

Material Test Results and Specifications are provided to  
Cincinnati Metals Company by the issuing mill.

John Cooper, QC

**CRESCENT MFG**  
**T.R. NO 84134**

[illegible]



2655 Harrison Ave. SW  
Canton, Ohio 44706-3047  
Phone 330-430-6190  
Fax: 330-430-6199

### PHYSICAL AND CHEMICAL CERTIFICATION

DATE MFG.: 10/15/14

PART NO.: AN6-20A per NASM6-20A rev. 3

AFC LOT NO.: 16363

QTY MFG.: 38,800

PROCUREMENT SPECIFICATION: Produced per NASM 6812

### HEAT TREAT

VENDOR: Brite Metal

CERTIFICATION NO.: B-140766

PROCUREMENT SPECIFICATION: Heat Treat per MIL-H-6875 H

### PLATING

VENDOR: Berlinger Plating

CERTIFICATION NO.: 51386

PROCUREMENT SPECIFICATION: Cadmium Plate per AMS-QQ-P-416 B, Type II, Class 2

### MATERIAL

MILL: Co-Steel

COUNTRY OF MELT: USA

HEAT: 903287


GRADE SPECIFICATION: Alloy Steel per AMS 6300 E, Type 4037, .390"

4037 MATERIAL CHEMISTRY											
ELEMENT-ID.	-C-	-MN-	-P-	-S-	-SI-	-NI-	-CR-	-MO-	-CU-	-AL-	Other
LADLE	.380	.820	.011	.007	.250	.010	.010	.240	.010	.032	

PHYSICAL PROPERTIES				
PHYSICAL	TENSILE	YIELD	SHEAR	HARDNESS
REQUIRED	10,100 lbs.	7,740 lbs.	8,280 lbs.	HRC 26-32
ACTUAL	13,223 lbs.	12,504 lbs.	8,846 lbs.	HRC 28-30

We hereby certify that the above data is correct and that the fasteners have been manufactured and inspected in accordance with Airfasco Industries quality requirements.

Airfasco Industries  
Quality Assurance Representative:

  
T. West



**CERTIFIED TEST REPORT****Calstrip Steel Corporation**

REGISTERED STOCK # 17000  
 7140 Bandini Blvd. • Los Angeles, CA 90040-3388  
 (323)726-1345 • Fax (323)722-8269

<b>Customer:</b> HIGHTOWER METAL PRODUCTS <b>Address:</b> P.O. BOX 5586 ORANGE, CA 92613-5586	<b>Order Number:</b> S70478 / W86179 <b>Customer PO:</b> 31195 <b>Shipped Date:</b> 01/27/2012 <b>Packlist ID:</b> 117103
<b>Part ID:</b> H280.1020016-CS <b>Description:</b> 1020 CR .016 X 3.630 XCOIL <b>Drawing #:</b> H280.1020016 <b>Rev #:</b>	<b>Material Spec:</b> 1020 AMS 5046C, ASTM A109-08

HeatID: 052916

**CHEMICAL ANALYSIS**

C	Mn	P	S	Si	Ni	Cr	Cu	Mo	Resi
0.1820	0.4110	0.0070	0.0080	0.0100	0.0100	0.0300	0.0200	0.0010	
W	V	Sn	Ti	Al	Ca	Zr	Co	N	B
	0.0010		0.0010	0.0390				0.0070	

**MECHANICAL AND PHYSICAL PROPERTIES**

Yield	Tensile	Elong %	Hardness	Bend Test	Skid Numbers	# of Coils	Weight
41,100	60,900	27.0	HRB 74	OK	W86179-1	2	1,668
					W86179-2	2	1,558
						4	3,226

Grain Size	Olsen Test	Spher%	Decarb	Reduct %
7				

Comment: SOURCE- POSCO (USA)

Anillo

These test reports apply to:

Part number: NASU99ENL16PLot number: SA 4023Sign/date: [Signature]

AN960-6L

All work on this order has been performed in accordance with the Company's Quality Assurance Manual

DEC 18 2014

MARIO VARGAS

Technical Services

Form #:

Print Date: 1/27/2012

Page: 1

# Certification

ANILLO INDUSTRIES, INC.  
2090 North Glassell st.  
Orange, CA. 92865-3391  
(714) 637-9110

*This is to certify that the below listed parts were processed per the applicable specification listed below.*

*Test reports and procedures governing this process are on file and subject to examination.*

*All parts are inspected for plating thickness by use of a X-ray. All instruments are currently calibrated and subject to examination.*

## CADMIUM PLATE AMS-QQ-P-416

Type	Class	Thickness	Revision
II	2	.000454	C

Job Number: SA4823	P/N REV.: 6	Quantity: 322,500	Visual: Y
Part Number: NAS1149 F N616 P			Adhesion: N
Description: SPLIT FROM Y5592			
RECERT			
REV CHANGE 1/22/15 BC	AN960-6L		

Date: 01/16/15

Authorized by: BRANDON CHAVEZ

Stamp:



FORM # 4.09.117 REV A 05/19/09